



Actions and plans 2010

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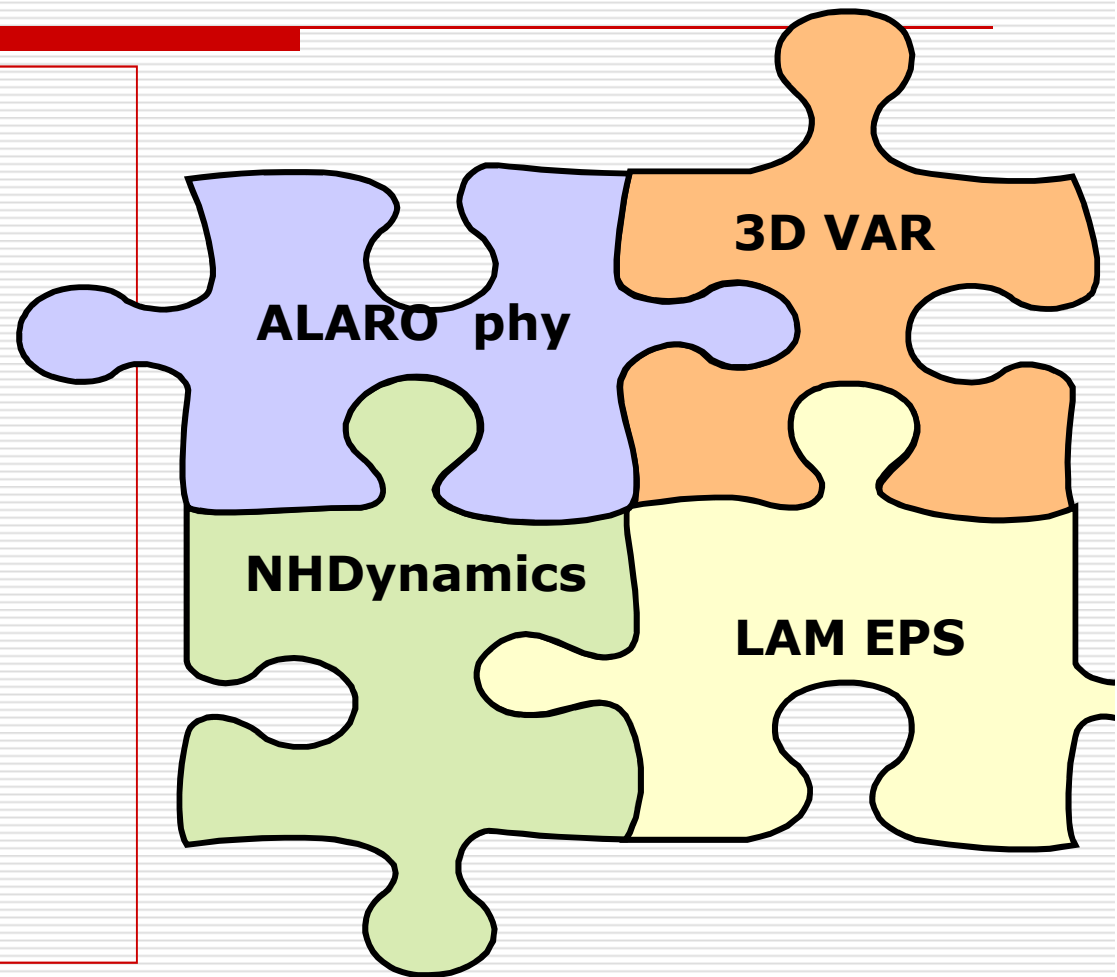
✓ **LACE Projects ()**

➤ **R&D highlights**

✓ **Future actions**

✓ **ALADIN-HIRLAM**

✓ **SRNWP**



R&D achievements



operative use,
optimization

4 Areas for R&D → 4 Projects

- Operational **3D Var system** for LACE (HMS)
 - **Common observation pre-processing (HMS)**
 - **Monthly reports of data monitoring**
- Implementation of **ALADIN NH** dynamics (CHMI)
- Operational **ALARO phy at 5km** mesh size (CHMI)
e-suite products at LACE WEB page
- Common **LAM EPS - ALADIN-LAEF** (ZAMG)
processed at ECMWF,
products at LACE WEB page, raw data at MARS DB

Operational 3D Var results 2009/2010

Objectives

- ❖ Centralized preprocessing of observations
- ❖ Installation of atmosph. (3DVAR) and surface (CANARI OI) analysis systems in LACE centers
- ❖ Enhanced use of high frequency observations
- ❖ Use of high resolution observations

- ✓ **Observations preprocessing OPLACE**
- ✓ **Observation Monitoring monthly reports**
- ✓ **3D VAR runs at 7 members**
- ✓ **LACE DA Working days**
 - Score comparisons **June 2010**
 - Comparison of B matrix diagnostics
 - Comparison of observ. use
- ✓ **New observation types**
LandSAF albedo, ASCAT, GPS

3D VAR set-up

	DA	B sampling	Blending	LBC	Order of surf-atm analysis	Cycle	ALARO	dx
AU	yes	ENS	no	ARP	parallel	cy32t1-2/cy35t1	yes	9.6 km / 60l
CZ	yes	LNMC	yes	ARP	can-var	cy35t1	yes	9 km / 43l
HR	yes	SNMC	no	ARP	can-var	cy35t1	yes-no 3MT	8 km / 37l
HU	yes	ENS	no	IFS	can-var	cy33t1	no	7.9 km / 49l
RO	yes	ENS	no	ARP	?	cy35t1	yes	
SI	yes	ENS	no	ARP	parallel	cy35t1	yes	4.4 km / 43l
SK	no	-	yes	ARP	-	?	yes	

'ALARO-1 Working Days' 16-19/02/2010, Budapest

New turbulent scheme TOUCANS:

- equivalence with full TKE scheme
- modified TKE solver
- Mixnig lengths from TKE
- Preparations for TOMs:
 - modication in 'moist' Anti Fibrillation scheme
 - modication in moist gustiness par.
- Shallow convection cloudiness

New 3MT deep convection parameterization

- with the explicit convection at high resolution

New microphysics scheme treated via Ice processes

- including prognostic graupel

Implementation of ALADIN NH dynamics

Objectives

- ❖ Validation of the current NH dynamics
- ❖ Improvements and development
- ❖ Code optimization of the NH dynamics
- ❖ Operational implementation

NH dyn.+ALARO phy

CHMI:

9km/43L vs 4.7km/87L

ZAMG:

9km/60L vs 4.9km/59L

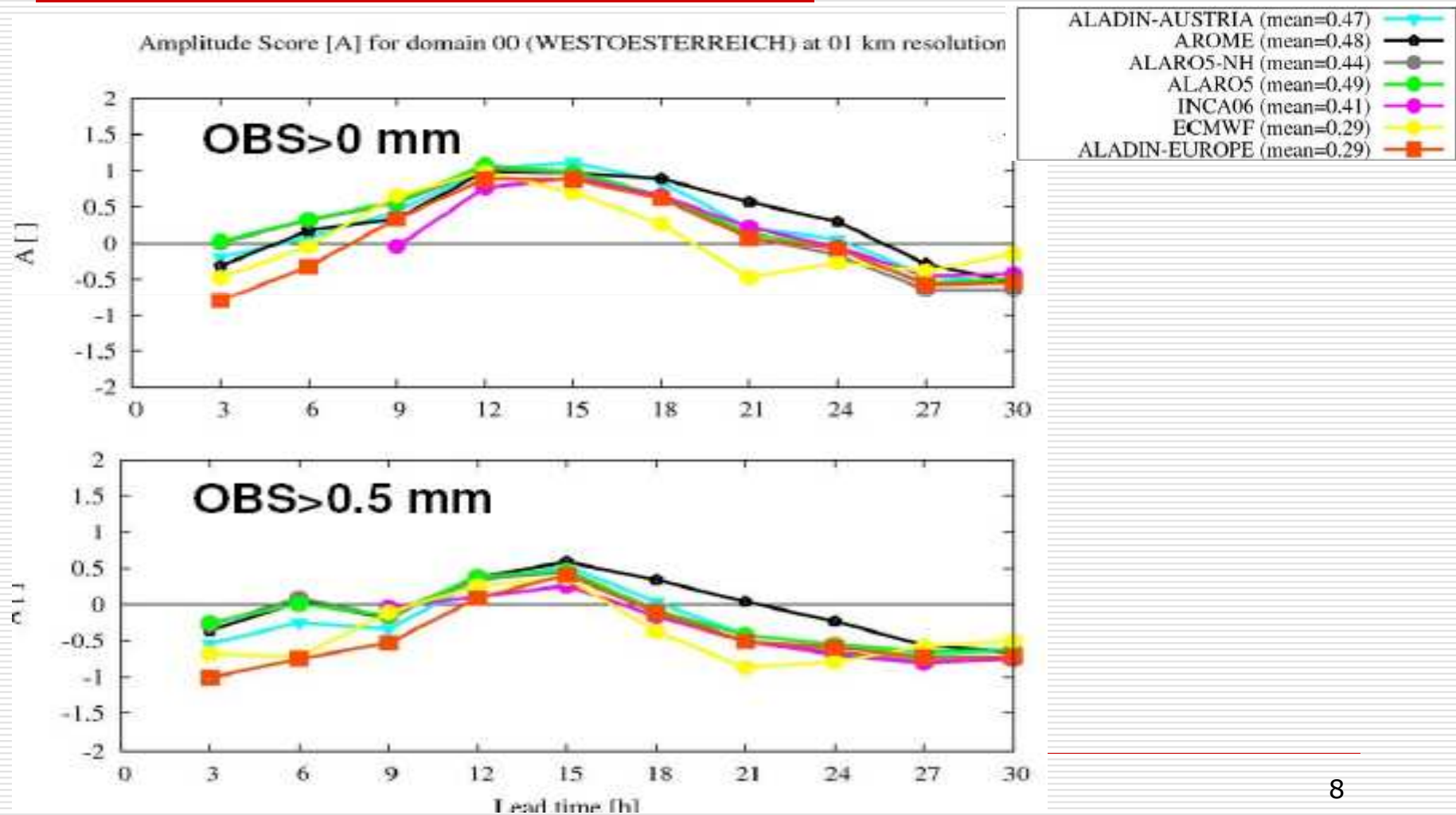
✓ Full dynamics/physics tests

- Benefit from ALARO-5km in terms of precipitation forecasts?
- SAL verification

INCA analyses

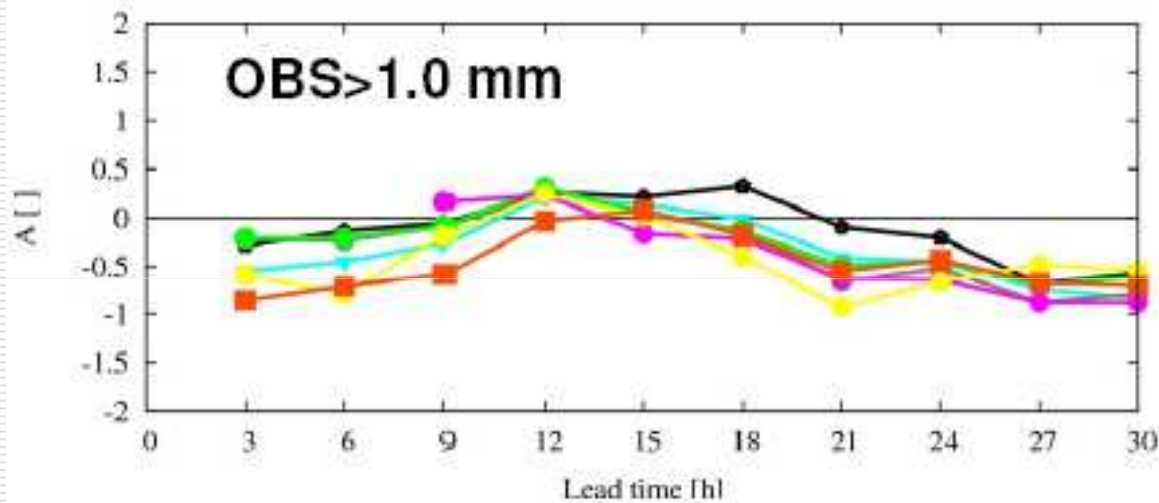
***radar+rain gauge**

NH dyn.+ALARO phy

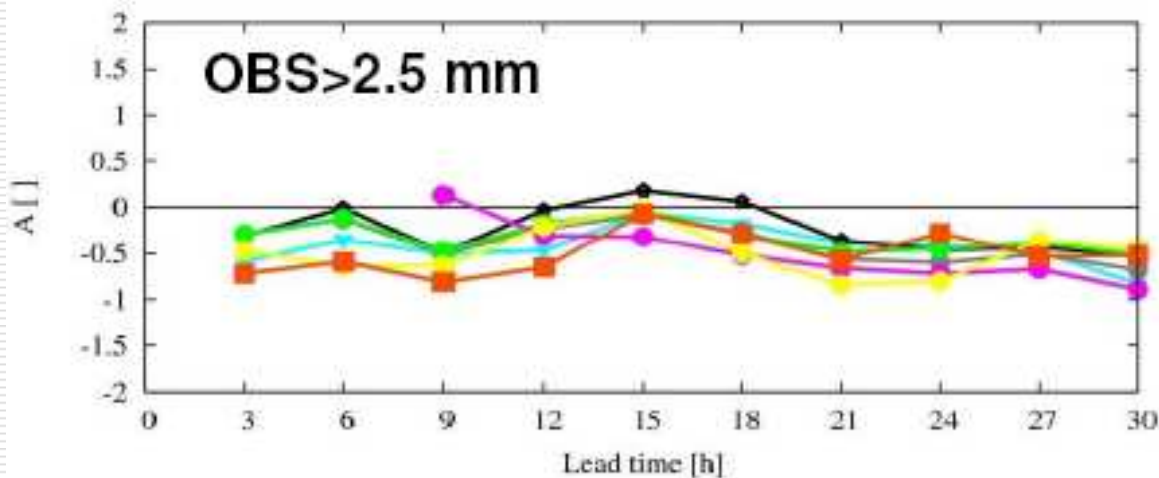


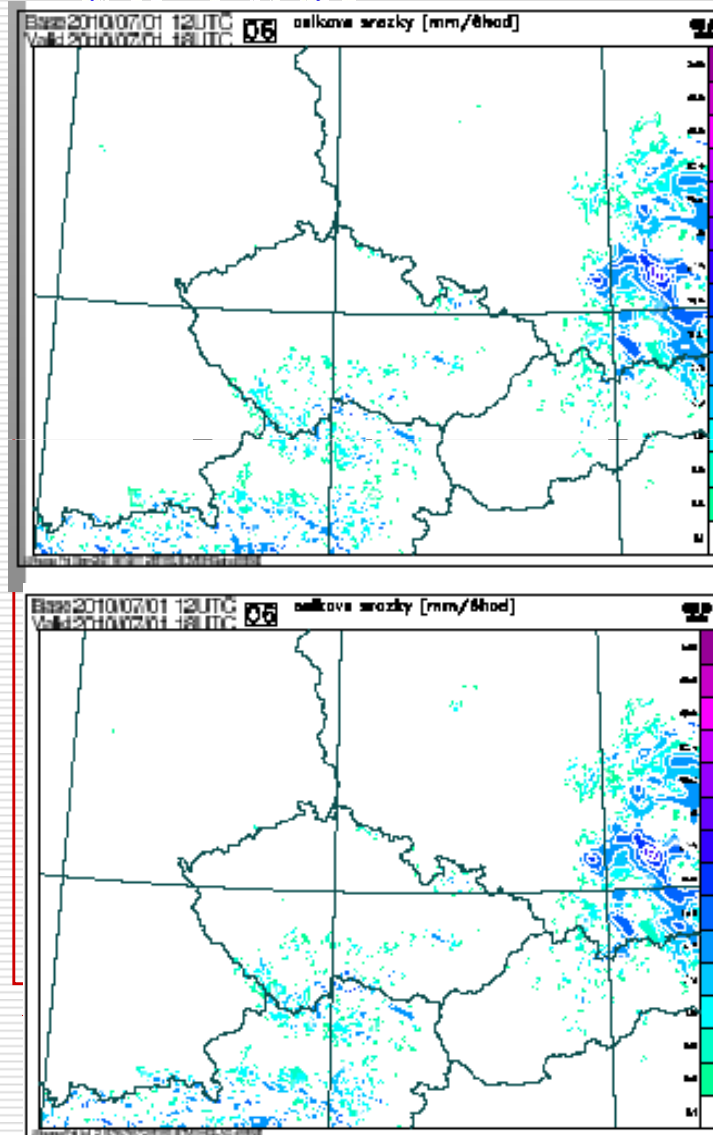
NH dyn.+ALARO phy

Amplitude Score [A] for domain 00 (WESTOESTERREICH) at 01 km resolution



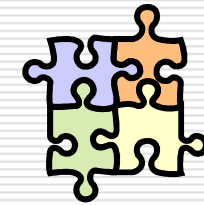
ALADIN-AUSTRIA (mean=0.47)
AROME (mean=0.48)
ALARO5-NH (mean=0.44)
ALARO5 (mean=0.49)
INCA06 (mean=0.41)
ECMWF (mean=0.29)
ALADIN-EUROPE (mean=0.29)





Implementation of ALADIN NH dynamics

First results:



- *very tight relation between
physics and dynamics*

of
ce

SL

moisture convergence

3D Lagrangian vs grid point
computation

ALADIN-LAEF

results 2008/2009

Objectives

- ❖ Original method:
Blending, surface
perturbation, Multi-
physics
- ❖ EPS system:
Products, calibration,
verification packages,
clustering

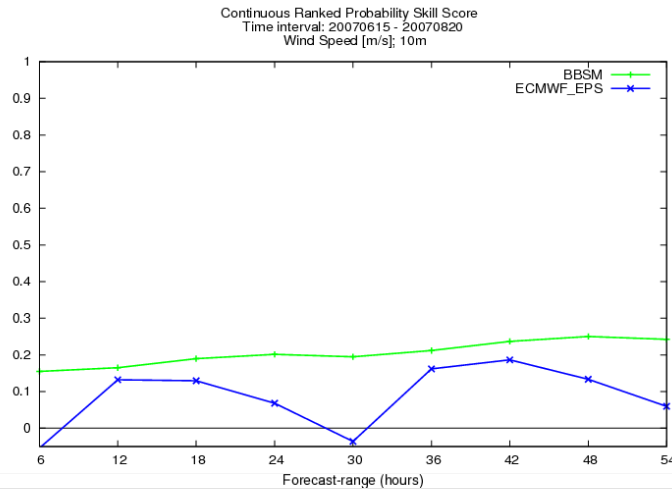
New LAEF:

Operative BBSM

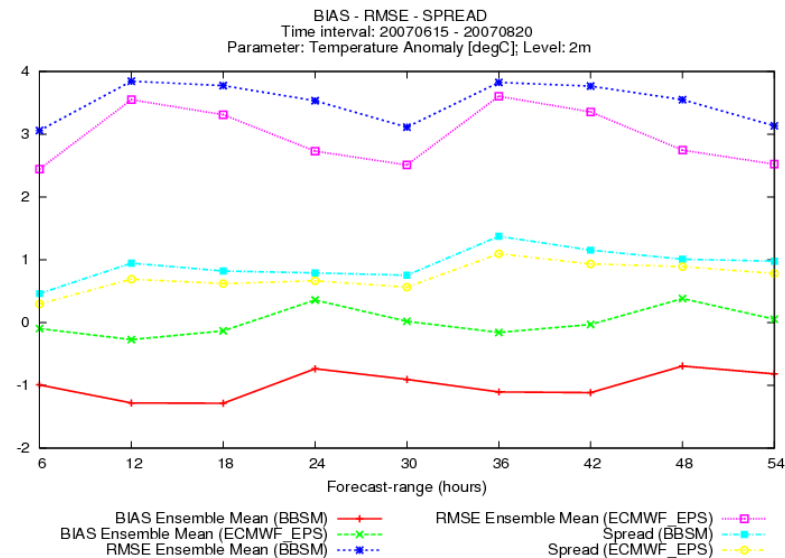
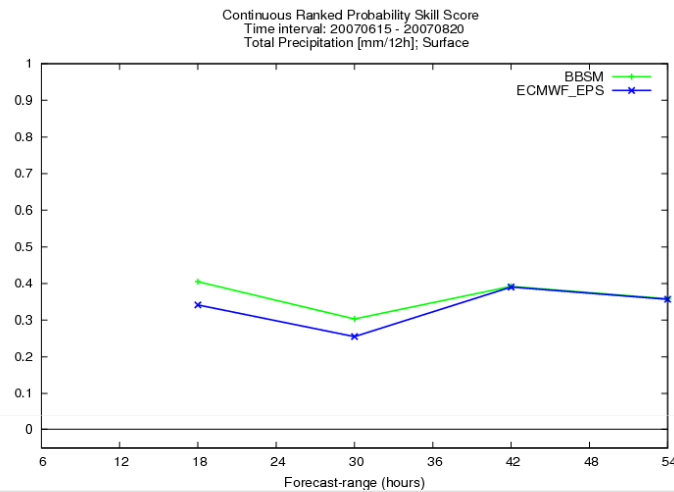
- **daily runs at ECMWF**
- **products at MARS DB**
- ✓ **Tuning and calibration**
- ✓ **Studies on LAM EPS vs ECMWF EPS system**

LAEF Quality: LAEF vs. ECMWF EPS

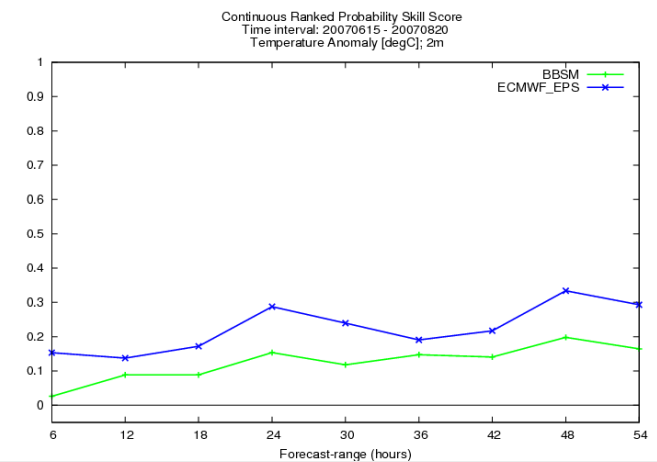
10m
W



Prec.



2m
T



Future actions (2010-2012)

 *operative use 3DVAR; ALARO5km*

- *Update and maintenance 10km-5km operative set-ups benefit from multi-scale development*
- **LACE Projects (2010-2012...) for High Resolution ALARO-1, 3D VAR, LAEF**
- **Implementation of Radar data at DA**
**OPERA products, standards, 2D vs 3D assimilation*
- **Long term research - COST ES0905**
parameterization of convection in NWP and Climate Models
- **Requests for LACE actions on Regional Climate modeling**

✓ *Toward AH strategy for HR modeling Step 1* *BRAC-HR*



4-7 October 2010



32nd EWGLAM, Exeter, UK

Actions

- ✓ **ETs at SRNWP WS**
- ✓ ***LACE at Interoperability Program (ALADIN coord.)***
- ✓ **LACE at Verification Program (ALADIN/CZ representative)**

Questions

- ***Implementation of SRNWP-I, SRNWP-V results***
- ***Re-lunch of SRNWP EurEPS program***
- ***Road-map of C-SRNWP 2010-2020***
- ***Maintenance of NWP oriented physiography DB (Lake DB,...)***
- ***Outcome of DA-EPS joined WS, February 2011***

Imagine

"Improving the efficiency of EUMETNET by moving towards shared services"

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